Having described the invention, I claim:

1. An apparatus for attaching a first bone to an adjacent second bone, the second bone being separated from the first bone by a space between the bone, said apparatus comprising:

an anchor having a platform for drivingly rotating said anchor and at least two helical spikes for embedding into at least one of the first and second bones upon rotation of said platform, said platform having a first surface that extends generally transverse to a longitudinal axis of said anchor;

said at least two helical spikes projecting from said first surface of said platform and extending around said longitudinal axis, said at least two helical spikes having a tip portion at a distal end which penetrates into bone as said platform is rotated;

said anchor having a first condition in which a first portion of each of said at least two helical spikes is extendable into one of the first and second bones, said anchor further having a second condition in which said first portions are extendable into the other of the first and second bones and a second portion of each of said at least two helical spikes is extendable

into said one bone to attach the first and second bones to one another while maintaining the space between the bones;

each of said at least two helical spikes further including a third portion extending between said first and second portions and that, when said anchor is embedded into the first and second bones, extends across the space between the bones.

2. The apparatus of claim 1 wherein in said first condition of said anchor, said at least two helical spikes are for embedding into one of the first and second bones and, in said second condition of said anchor, said at least two helical spikes are for embedding into both of the first and second bones.

3. The apparatus of claim 1 wherein each of said at least two helical spikes, when implanted, has a conical shape that increases in diameter as said at least two helical spikes extend away from said platform.

4. The apparatus of claim 1 wherein at least a portion of each of said at least two helical spikes is made of a shape memory alloy that is responsive to changes in temperature above and below a predetermined temperature transition range, said at least two helical spikes being heated above said predetermined temperature transition range as said at least two helical spikes are being implanted into bone.

5. The apparatus of claim 4 further comprising a tubular sleeve for receiving said anchor, said anchor being positionable inside said tubular sleeve when the temperature of said at least two helical spikes is below said predetermined transition temperature range.

6. The apparatus of claim 1 further comprising a cannula through which said anchor is insertable and for accessing one of the first and second bones.

7. The apparatus of claim 1 wherein each of said at least two helical spikes has a connecting portion at a proximal end connected to said platform and an intermediate portion extending between said connecting portion and said tip portion.

8. The apparatus of claim 7 comprising a pair of helical spikes extending around said longitudinal axis, said proximal ends of said pair of helical spikes being spaced 180° apart.

9. The apparatus of claim 7 comprising three helical spikes extending around said longitudinal axis, said proximal ends of said three helical spikes being spaced 120° apart.

10. The apparatus of claim 1 wherein said first surface has a shape that is complimentary to the shape of an outer surface of the bone for engaging the outer surface of the bone.

11. The apparatus of claim 1 wherein one of said first and second bones is a sacrum and the other of said first and second bones is a fifth lumbar (L5) vertebrae.

12. The apparatus of claim 11 wherein said first surface is porous to promote bone in-growth.

13. The apparatus of claim 11 wherein said first surface has surface features that elevate its surface area to promote bone in-growth.

14. The apparatus of claim 11 wherein, when said anchor is in said second condition, at least a portion of said platform is recessed into an outer surface of one of the sacrum or the L5 vertebrae.

15. The apparatus of claim 11 wherein said first surface has an oblique shape that is complimentary to the shape of an outer surface of one of the sacrum or the L5 vertebrae.

16. The apparatus of claim 1 wherein said first surface has a rough texture that provides an increased surface area to promote bone in-growth.

17. The apparatus of claim 1 wherein each of said at least two helical spikes has a solid cross-section.

18. The apparatus of claim 1 wherein each of said at least two helical spikes has a tubular cross-section.

19. The apparatus of claim 1 wherein a first section of each of said at least two helical spikes has a solid cross-section and a second section of each of said at least two helical spikes has a tubular cross-section.

20. The apparatus of claim 1 further comprising a starter tool for forming starting holes in the bone that said at least two helical spikes are received in, said starter tool comprising a platform having a surface that extends transverse to a longitudinal axis of said starter tool and at least two helical spikes extending from said surface, said at least two helical

spikes on said starter tool corresponding in quantity and size to said at least two helical spikes on said anchor but are substantially shorter in axial length to resist radially outward deformation during rotation of said platform.

21. An apparatus for attaching a fifth lumbar (L5) vertebrae to a sacrum, said apparatus comprising:

an anchor for extending between the L5 vertebrae and the sacrum and for attaching the L5 vertebrae to the sacrum, said anchor having a platform for drivingly rotating said anchor, said platform including a first surface that is solid and that extends generally transverse to a longitudinal axis of said anchor;

said anchor further having at least two helical spikes for embedding into both of the L5 vertebrae and the sacrum upon rotation of said platform, said at least two helical spikes projecting from said first surface of said platform and extending around said longitudinal axis, said at least two helical spikes having a tip portion at a distal end for

penetrating into at least one of the L5 vertebrae and the sacrum as said platform is rotated;

said anchor having a first condition in which said at least two helical spikes are embeddable into one of the L5 vertebrae and the sacrum, said anchor further having a second condition in which said at least two helical spikes are embeddable into both of the L5 vertebrae and the sacrum to attach the L5 vertebrae and the sacrum to one another while maintaining an intervertebral space between the L5 vertebrae and the sacrum, said anchor being movable from said first condition to said second condition by rotation of said platform;

a portion of each of said at least two helical spikes of said anchor, when said anchor is embedded into the L5 vertebrae and the sacrum, extending across the intervertebral space between the L5 vertebrae and the sacrum.

22. The apparatus of claim 21 wherein said first surface is porous to promote bone in-growth.

23. The apparatus of claim 21 wherein said first surface has surface features that elevate its surface area to promote bone in-growth.

24. The apparatus of claim 21 wherein, when said anchor is in said second condition, at least a portion of said platform is recessed into an anterior surface of the sacrum.

25. The apparatus of claim 21 wherein said first surface has an oblique shape that is complimentary to the shape of an anterior surface of the sacrum for engaging the anterior surface.

26. The apparatus of claim 21 wherein, when said anchor is in said second condition, at least a portion of said platform is recessed into a posterior surface of the sacrum.

27. The apparatus of claim 21 wherein said first surface has an oblique shape that is complimentary to the shape of a posterior surface of the sacrum for engaging the posterior surface.

28. The apparatus of claim 21 wherein, when said anchor is in said second condition, at least a portion of said platform is recessed into an anterior surface of the L5 vertebrae.

29. The apparatus of claim 21 wherein said first surface has an oblique shape that is complimentary to the shape of an anterior surface of the L5 vertebrae for engaging the anterior surface.

30. The apparatus of claim 21 wherein each of said at least two helical spikes has a cylindrical shape with a generally constant overall diameter.

31. The apparatus of claim 21 wherein each of said at least two helical spikes, when implanted, has a conical shape that increases in diameter as said at least two helical spikes extend away from said platform.

32. The apparatus of claim 31 wherein at least a portion of each of said at least two helical spikes is made of a shape memory alloy that is responsive to changes in temperature above and below a predetermined

temperature transition range, said at least two helical spikes being heated above said predetermined temperature transition range as said at least two helical spikes are being implanted into the bone.

33. The apparatus of claim 21 wherein each of said at least two helical spikes has a connecting portion at a proximal end connected to said platform and an intermediate portion extending between said connecting portion and said tip portion.

34. The apparatus of claim 33 comprising a pair of helical spikes extending around said longitudinal axis, said proximal ends of said pair of helical spikes being spaced 180° apart.

35. The apparatus of claim 33 comprising three helical spikes extending around said longitudinal axis, said proximal ends of said three helical spikes being spaced 120° apart.

36. The apparatus of claim 21 wherein each of said at least two helical spikes has a solid cross-section.

37. The apparatus of claim 21 wherein each of said at least two helical spikes has a tubular cross-section.

38. The apparatus of claim 21 wherein a first portion of each of said at least two helical spikes has a solid cross-section and a second section of each of said at least two helical spikes has a tubular cross-section.

39. A method for attaching a first bone in a patient's body to an adjacent second bone, the second bone being separated from the first bone by a space between the bones, said method comprising the steps of:

providing an anchor having a platform and at least two helical spikes, the platform having a first surface that extends generally transverse to a longitudinal axis of the anchor, the at least two helical spikes projecting from the first surface of the platform and extending around the longitudinal axis;

engaging one of the bones with the at least two helical spikes;

rotating the platform of the anchor which embeds a first portion of each of the at least two helical spikes into one of the first and second bones;

further rotating the platform of the anchor so that the anchor extends across the space and embeds the first portion of the anchor into the other of the first and second bones and a second portion of the at least two helical spikes to attach the first and second bones to one another while maintaining the space between the bones, a portion of each of the at least two helical spikes extending across the space between the bones.

40. The method of claim 39 wherein said step of rotating the platform embeds the at least two helical spikes into one of the first and second bones and said step of further rotating the platform embeds the at least two helical spikes into both of the first and second bones.

41. The method of claim 39 wherein at least a portion of each of the at least two helical spikes is made of a shape memory alloy that is responsive to changes in temperature above and below a predetermined

temperature transition range, said method further comprising the step of heating the at least two helical spikes above the predetermined temperature transition range as the at least two helical spikes are being implanted into bone.

42. The method of claim 39 wherein one of said first and second bones is a sacrum and the other of said first and second bones is a fifth lumbar (L5) vertebrae, further comprising the step of rotating the platform until the first surface of the anchor engages a surface on one of the sacrum and the L5 vertebrae.

43. The method of claim 42 further comprising the step of rotating the platform until at least a portion of the platform is recessed into the surface on one of the sacrum and the L5 vertebrae.

44. The method of claim 39 further including the step of forming at least two holes in one of the bones, said step of engaging the bone with the at least two helical spikes includes moving an end portion of each of said at least two helical spikes into one of the at least two holes in the bone.

45. The method of claim 44 further including the step of providing a starter tool having at least two helical spikes that correspond in quantity and size to the at least two helical spikes on said anchor, the at least two helical spikes on the starter tool having a short axial length to resist radially outward deformation, said step of forming at least two holes includes rotating the starter tool to form the holes.

46. A method as set forth in claim 45 further comprising the steps of:

positioning a wire through the first and second bones along a desired axis;

placing the starter tool over the wire and sliding the starter tool toward one of the bones along the desired axis;

engaging a surface of one bone with the at least two helical spikes on the starter tool and rotating the starter tool to form the at least two holes;

removing the starter tool from the wire;

placing the anchor over the wire and sliding the anchor toward the one bone along the desired axis; and

inserting the at least two helical spikes on the anchor into the at least two holes in the one bone formed by the starter tool.

47. The method of claim 45 further comprising the steps of:

positioning a wire through the first and second bones along a desired axis; and

placing the anchor over the wire and sliding the anchor toward one of the bones along the desired axis.

48. The method of claim 39 further including the step of limiting radially outward deformation of the at least two helical spikes by positioning a sleeve around the helical spikes during rotation of the anchor about a central axis of the anchor.

49. A method for attaching a fifth lumbar (L5) vertebrae to a sacrum, said method comprising the steps of:

removing disc material disposed between the L5 vertebrae and the sacrum to create an interbody space;

providing an anchor for extending between the L5 vertebrae and the sacrum and for attaching the L5 vertebrae to the sacrum, the anchor having a platform for drivingly rotating the anchor, the platform including a first surface that extends generally transverse to a longitudinal axis of the anchor;

the anchor further having at least two helical spikes for embedding into both of the L5 vertebrae and the sacrum upon rotation of the platform, the at least two helical spikes projecting from the first surface and extending around the longitudinal axis;

engaging one of the L5 vertebrae and the sacrum with the at least two helical spikes on the anchor;

rotating the platform so that a portion of each of the at least two helical spikes embeds into one of the sacrum and the L5 vertebrae;

further rotating the platform so that the at least two helical spikes extend across the interbody space and into the other of the sacrum and the L5 vertebrae to attach the L5 vertebrae and the sacrum to each other while maintaining the interbody space between the L5 vertebrae and the sacrum such that a portion of each of the at least two helical spikes extends across the interbody space between the L5 vertebrae.

50. The method of claim 49 further comprising the step of rotating the platform until at least a portion of the platform is recessed into a surface on one of the sacrum and the L5 vertebrae.

51. The method of claim 50 further comprising the step of inserting the anchor into the patient's body through a cannula.

52. The method of claim 49 further comprising the step of placing an osteogenic material into the interbody space following implantation of the anchor.